



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,908	07/12/2002	Makoto Yoneya	220523US0PCT	2995
22850	7590	03/30/2006	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			NGUYEN, HOAN C	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 03/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/070,908

Applicant(s)

YONEYA ET AL.

Examiner

HOAN C. NGUYEN

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 February 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 2,8-20 and 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-7 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/13/2006 has been entered.

Claims 2 and 8-20 are withdrawn. New claim 22 depends on the withdrawn claim 2, thus it is also withdrawn.

Claim 1 amended with new feature "group of interdigitated electrodes". However, Kim et al. disclose In-Plane Switching mode liquid crystal cell (col. 6 line 32), which **inherently** includes "group of interdigitated electrodes" as disclosed in Tomioka et al. (US6682783B1).

Figure 14 of Kim et al. disclose (a) a first alignment layer 8 (Figs. 14a-c) is made of polyimide and is rubbed by mechanical with low pretilt angle (almost 0°) as Figs. 11a-b shown; (b) a second alignment layer 9 (Figs. 14d-l) is made of photo-polymers including polysioxance and rubbed by UV light with low pretilt angle near to 0° if the photo energy more than 6000mJ/cm (Fig. 4, col. 5 lines 30-32).

The second alignment layer 9 in Figures 11c-f and 14d-i can be aligned by the UV light of any energy from 2000-12000 mJ/cm<sup>2</sup>, which describes in Figure 4.

Art Unit: 2871

However, in Fig. 11c-f, the second alignment layer 9 formed two domains of the high-photo-energy to provide low pretilt angle less than  $5^{\circ}$  (col. 6 lines 50-55). Therefore, examiner believes Kim et al. disclose all features of all elected claims.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 3-7 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al. (US6091471A).

In regard to claims 1, Kim et al. teach (Figs. 4, 10-14) a liquid crystal display device comprising

- a pair of substrates, at least one of which is inherently transparent for transmitting light through LC cell so that light can be modulated;
- a nematic liquid crystal between the pair of substrates as Figs. 10a-b shown.
- a In-Plane Switching (col. 6 line 32) mode liquid crystal cell as inherently a group of interdigitated electrodes
  - formed on at least one of substrates and
  - adapted to apply an electric field to the liquid crystal layer, wherein the electric field inherently having a component substantially parallel to the surfaces due to a In-Plane Switching (IPS) mode liquid crystal cell;

Art Unit: 2871

- an alignment layer
  - disposed between the liquid crystal layer and at least one of substrates;
  - having been subjected to liquid crystal anchoring treatments (col. 5 lines 53-55) in plural directions to form a plurality of liquid crystal in-plane anchoring directions as Fig. 14 with the photo energy more than 6000mJ/cm (Fig. 4, col. 5 lines 30-32), thereby forming a plurality of liquid crystal in-plane anchoring directions.

wherein

- two of liquid crystal in-plane anchoring directions of the alignment layer form substantially equal angles (as Figs. 14d-i shown) on the corresponding substrate surface;
- pretilt angle in one liquid crystal anchoring direction with respect to the corresponding substrate surface is substantially zero when the photo energy more than 6000mJ/cm (Fig. 4, col. 5 lines 30-32) or less than 5° that is in a range 0-5° (col. 1 line 35-36).

wherein

Claim 3:

- at least one of the liquid crystal anchoring treatments in the plural directions is a process for performing uniform anchoring treatment over an entire target area in each of the directions as shown (col. 2 lines 31-34).

Claim 4:

Art Unit: 2871

- at least one of the liquid crystal anchoring treatments in the plural directions is a process for dividing an entire target area into plural sub-areas corresponding to the plural directions and performing anchoring treatment in each of the sub-areas in the corresponding direction (col. 2 lines 14-20).

Claim 5:

- at least one of the liquid crystal anchoring treatments in the plural directions is a process for irradiating the alignment layer with linearly polarized light that can cause a chemical reaction on the surface of the corresponding substrate (col. 2 lines 21-27).

Claim 6:

- at least one of the liquid crystal anchoring treatments in the plural directions is a process for scanning the alignment layer with a probe that can impart stress to the surface of the corresponding substrate (mechanical rubbing with friction on alignment layers as shown in Fig. 11a).

Claim 7:

- at least one of the liquid crystal anchoring treatments in the plural directions is a process for scanning the alignment layer as Figs. 3 and 14a-j shown with UV light that can cause inherently a chemical reaction on the surface of the corresponding substrate.

Claim 21:

Art Unit: 2871

- the device is capable of maintaining of two of stable in-plane alignment state crystal (two domains) even after the removal of the applied electric field as Figs. 10a-b and 14a-j shown.

### ***Conclusion***

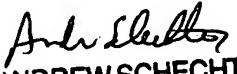
Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (571) 272-2296. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim H. Robert can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HOAN C. NGUYEN  
Examiner  
Art Unit 2871

chn

  
ANDREW SCHECHTER  
PRIMARY EXAMINER